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Academy Head Lauds Reagan R&D Policy

The Administration's science policies were warmly hailed and George A. Keyworth II, Mr. Reagan's Science Adviser, was canonized last week as the savior of American science by no less an eminence than Frank Press, who, as President of the National Academy of Sciences, had previously staged a number of devastating ambushes for the tenderfoot presidential aide.

Press's performance took place before an audience of approximately 400 attending the American Association for the Advancement of Science's annual attempt to decode the federal budget (see Page 5).

The performance by the Academy President was remarkable in and of itself, but all the more so since it came shortly after Keyworth, with a good deal of feeling, delivered himself of what he described as his "pent-up reactions" to "bogeyman" criticisms of the Administration's research policies. Keyworth and Press shared a speakers' table on stage and appeared to chat amiably before the proceedings got underway. Keyworth spoke first and then excused himself to leave for other business. He thus was not present when Press, who served as Jimmy Carter's science adviser, said that the scientific community had over-reacted to Mr. Reagan's science policies, and suggested that Keyworth may be the most effective of all presidential science advisers in bringing home the bacon for science.

Administration Reconsiders Do-Nothing Stance on Education—Page 7

Referring to a budget rally that he organized at the Academy last October shortly after the Administration announced a new round of budget reductions (SGR Vol. XI, No. 18), Press said:

"I remember that last year, Keyworth counseled the scientific community during that budgetary crisis when we all thought that we were going to have an across-the-board 12-percent cut. He said that it's not going to be as bad as you people fear. And that's the way it turned out. In many areas of basic research, he did achieve real growth, and I know that he had to fight for it."

Noting that "within the largest deficit in federal history, science was relatively well treated," Press said that Keyworth "seems to have the courage to tackle these very difficult and politically dangerous issues of evaluation and reorganization and reallocation in order to put money into the best scientific institutions, the best people in the country.

"I think we should give him credit for this," Press continued. "None of his predecessors were able to accomplish this, but, in principle, it can lead to the strongest program imaginable..."

That October budget meeting, along with Press' orchestration of criticism of the Administration's science-education policies (SGR Vol. XII, No. 8) and other activities, had inspired the impression that Press and the Academy were at the nucleus of a science establishment in exile. But the Academy President, in effect, discounted that possibility when he praised the Administration's stated plans to examine and reorder the government's science and technology priorities.

"I will suggest that there are many opportunities for reorganization and reprogramming federal R&D funds that would allow for real growth and make for more

(Continued on page 3)

In Brief

It was a close call, but science emerged without a nick from Capitol Hill's big budget-chopping exercise last month. For fiscal 1983, the Administration requested $7.8 billion for the category of general science, space, and technology. The House cut that back to $7 billion, about where it is this year, but the Senate came to the rescue and restored the original figure.

With James B. Wyngaarden installed as Director of NIH, a number of high-level vacancies at various institutes in Bethesda are finally being filled. Mortimer B. Lipsett, Director of the NIH Clinical Center, becomes Director of the National Institute of Child Health and Human Development; Lester Salans moves from Acting Director to Director of the National Institute of Arthritis, Diabetes, and Digestive and Kidney Diseases, and Claude Lenfant, Associate NIH Director for International Research, becomes Director of the National Heart, Lung, and Blood Institute.

NSF's latest survey of the science and engineering job market says employers are reporting shortages or balance in all major fields except chemistry, civil engineering, physics, and mathematics. (NSF *Highlights* report No. 82-310, available without charge from Division of Science Resources Studies, NSF, 1800 G St. Nw., Washington, DC 20550.)

Keyworth Assails "Pork-Barrel" Thinking

The following is from an address, "The Role of Science in a New Era of Competition," by Presidential Science Adviser George A. Keyworth II, June 23 in Washington at the Seventh Annual Colloquium on R&D Policy sponsored by the American Association for the Advancement of Science:

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I feel compelled to get something off my chest—and this strikes me as a good forum in which to do it. But let me get there by way of an analogy.

From the time when I was still an honest scientist, I remember a theoretical nuclear physicist who had devised a comprehensive theory of nuclear isomers. The only trouble was that his theory was increasingly assailed by the discovery of more and more examples that challenged it. In due course a final experimental finding was inconsistent with his theory. His classic response to that discovery was to say: "I like my theory. Don't encumber it with facts."

Likewise, I'm afraid, much of the science community in the past year has been obsessed with some kind of theory that the Reagan Administration was out to cut science budgets for various ideological reasons. So pervasive was that belief that the release of the proposed FY 1983 budget, with R&D getting the second largest increase of any budget function—and in a time of severe fiscal constraints—went virtually unnoticed. Instead of recognizing the importance placed on R&D in the budget, especially in comparison to other federal programs, like that physicist the science community has been sticking to its bogeyman theory and not about to encumber it with facts.

Let me give an example of the frustration my staff and I endure in this area. For ten years support for the three major Department of Energy high energy physics facilities—SLAC, Fermilab, and Brookhaven—has been falling behind inflation. Today they are starved into a state of near intellectual malnutrition. I posed this question to the High Energy Physics Advisory Panel, appointed by both the Department of Energy and the National Science Foundation: "What would be necessary to maintain the United States' leadership in high energy physics through this decade and beyond?" Following their advice, we added nearly 20 percent to the DOE high energy physics budget. We attempted to ensure that we would extract the optimum amount of physics from existing facilities and that we would posture ourselves to meet future demands for new experimental facilities. All this in the midst of fiscal scrutiny that was unprecedented in recent times. Nevertheless, the only reports ensuing from this action addressed the demise of a facility to which the high energy physics community would only attach high priority if a 35-percent increase in the budget could be implemented.

Another example: We proposed another nearly 20-percent increase in the budget for space science research because we saw tremendous opportunity for a broad research program using the Space Shuttle. We emphasized the astrophysics and astronomy research programs available with the Shuttle, including the Space Telescope. At the same time, we chose to ask the planetary science community to restructure their program to provide more missions at lower cost. After all, the cost of each mission was approaching a billion dollars, equal to the budget of the entire National Science Foundation. Our objective was to sustain a vital but realistic effort in planetary research. Yet to hear the space science community, we've gutted their activities.

I would hate to conclude that the science community, which I hold in such high regard, is unable to rise above the kind of pork-barrel thinking that says a program once started must continue—and grow—independent of scientific priorities. Unfortunately, that kind of attitude can be found all too often. Recently I found myself amidst a group of politicians addressing the role of science and technology in our future. A Democratic senator attacked the Reagan Administration's reduction of funds for windmill research at a NASA center as an example of how we were cutting basic research....

Now, having delivered myself of those pent-up reactions....

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. . .Reallocation Effort Unique, Press Says

(Continued from page 1)
productive US science with minimal budgetary threat," Press said, adding:

"This would require an unprecedented evaluation, reorganization, and reallocation, in the face of bureaucratic and political opposition. It has never been accomplished before, but it may well be that this is one Administration that seems willing to try it, and might bring it off. But it is a very risky and dangerous operation..."

Unlike Press, who alternated between a sheaf of papers and extemporaneous delivery, Keyworth arrived with a prepared text that was studded with acerbic remarks—and he stuck to it.

Obviously nettled by the criticism that has been flung at him since he arrived in Washington just about a year ago, he opened with a jab at the press. Recalling that his first formal appearance as presidential Science Adviser was at last year's AAAS budget review, he said, "That was an event I thoroughly enjoyed—until I started reading in the press what it was I supposedly said and what it supposedly meant. Well, let me try again—a year older and a year wiser—to describe the global context for science and technology in the Reagan Administration."

This was followed by the Administration's boilerplate handwringing and exhortations concerning the state of the economy it inherited and the need for all but defense to be subordinate to measures for economic improvement—but with R&D not far behind defense as a favored category. Nothing new or remarkable in that or in most of the rest of Keyworth's remarks about the Administration's strategy for R&D. What was new and remarkable, however, was the manner in which he threw a year's worth of sniping and criticism right back at his detractors, a performance so out of line with the usual powder-puff oratory that dominates science-policy deliberations that SGR thinks it merits precious space (see Page 2) for verbatim treatment.

Press's astonishing adulation of the Reagan Administration's science policies invites a variety of interpretations. First off, there is the possibility that the policies are indeed meritorious for the main goal of the elders of science—an annually increasing supply of money for peer-approved research. Adjacent issues, such as special boosts for women and minorities, science in the schools, and international scientific collaberation, are extremely important, too, for the mainstream leaders who have governed American science throughout the postwar period. But when it comes to a crunch, as now exists, growth for the actual conduct of basic research takes precedence, and, in that regard, the budget figures are reasonably favorable.

Some cynics might conclude that there is a connection between Press's apparent change of mind and a recent *New York Times* report to the effect that the Administration is peeved at the Academy and is withdrawing government business from the financially straitened venerable institution. Federal contracts are, in fact, down at the Academy, though by less than 10 percent over last year; and there was some serious friction between the Academy and the Administration concerning an NAS report that midwest industry might be responsible for acid rain landing in Canada and the upper northeastern states—a politically sensitive hypothesis that so annoyed the Reagan Administration that the acid-rain study was removed to Keyworth's office.

There should be no doubt that if the Reagan Administration chose to turn off the water at the National Academy of Sciences the organization would wither down to little more than an honorary society. Press, just starting his second year in office, has been energetically rounding up no-string endowment funds wherever he can find them. But, with a staff of about 1100 and an annual budget of around $70 million—90 percent of it from the federal government—the Academy has every reason to pursue amicable relations with the Reagan Administration. —DSG

In Print

Global Models, World Futures, and Public Policy—A Critique, by the Congressional Office of Technology Assessment, examines analytical techniques employed in several recent and often controversial futures studies, including *Global 2000;* OTA concludes that modeling "represents an important analytical tool" and that the "current state of the art. . .offers the US Government a significant opportunity to improve its foresight capability." (120 pages, $5.50, available from Superintendent of Documents, USGPO, Washington, DC 20402; specify GPO Stock No. 052-003-00870-0.)

Behavioral and Social Science Research: A National Resource, a report by a National Academy of Sciences committee, made up mostly of social scientists, says the expectable about the importance of their work and urges generous, gentle treatment by federal budgetmakers. (121 pages, $9.95, available from National Academy Press, 2101 Constitution Ave. Nw., Washington, DC 20418.)

Science, Technology, and American Diplomacy, 1982, Congressionally mandated annual presidential report on US R&D relations with other nations, includes country-by-country inventory of activities. (Available without charge from House Committee on Science and Technology, Wash., DC 20515.)

R&D Funds to Hit Record $85 Billion in 1983

Government and private spending on research and development will hit a record high of $85 billion in the US next year, according to a newly issued forecast by the National Science Foundation. The sum exceeds R&D spending in "all Western Europe countries and Japan combined," NSF says, and will amount to a 4-percent "real" increase over current annual spending.

The downside of these cheery figures is to be found in analyses of where we spend the money relative to our major industrial competitors. In terms of the proportion of gross national product that the US devotes to R&D, we're at 2.4 percent, roughly the same as West Germany and a bit more than Britain, and Japan. However, while we devote 1.6 percent of our GNP to civilian research, West Germany spends 2.2 percent and Japan 1.9 percent in that area.

Other points in the NSF report:

• Basic research expenditures in 1983 will come close to $10 billion, 7 percent ahead of 1982, which works out, at best, to an inflationary standstill.

• Spending on development will increase by 11 percent, to a total of $57 billion, with the boost coming from defense and increases in industry's own expenditures.

• Reversing a pattern that persisted until about five years ago, industry is now the dominant source of finance for R&D, with next year's expenditures forecast at $45 billion, $5 billion more than the federal government is expected to spend. The NSF reports adds that "From 1975 to 1983, non-federal R&D support is expected to increase at an average [constant-dollar] annual rate of more than 5 percent annually—nearly twice the rate of federal R&D support."

• Industry is increasingly spending its own money on research, rather than the government's. "In the late 1960s," the report states, "the government provided nearly one-half the funds for research and development performed by industry. From the mid-seventies through 1983, however, industry's own funds account for ap-

(Continued on page 5)

R&D Money: The Providers and the Spenders

[Millions of dollars]

Year	Total	Federal Government	Industry[1]	Academic Sector		Other nonprofit institutions[2]
				Universities and colleges	Associated FFRDC'S[1]	
By performer						
1975	$35,213	$5,354	$24,187	$3,409	$ 987	$1,276
1976	39,016	5,769	26,997	3,727	1,147	1,376
1977	42,982	6,105	29,928	4,070	1,384	1,495
1978	48,295	6,920	33,365	4,621	1,717	1,672
1979	54,994	7,564	38,147	5,354	1,935	1,994
1980	62,222	7,929	43,879	6,049	2,235	2,130
1981 (est.)	69,790	9,000	49,600	6,600	2,350	2,240
1982 (est.)	77,285	10,000	55,700	6,950	2,350	2,285
1983 (est.)	85,000	11,000	61,800	7,500	2,300	2,400
By Source						
1975	$35,213	$18,109	$15,820	$ 749	—	$ 535
1976	39,016	19,914	17,694	808	—	600
1977	42,982	21,727	19,696	887	—	672
1978	48,295	24,003	22,491	1,035	—	766
1979	54,994	26,935	26,028	1,194	—	837
1980	62,222	29,576	30,400	1,313	—	933
1981 (est.)	69,790	32,910	34,385	1,490	—	1,005
1982 (est.)	77,285	36,125	38,500	1,600	—	1,060
1983 (est.)	85,000	39,550	42,600	1,700	—	1,150

[1]Federally funded R&D centers administered by individual universities and colleges and by university consortia.

[2]Includes expenditures for federally funded research and development centers (FFRDC'S) administered by this sector. They account for less than 5 percent, respectively, of the industry and nonprofit performance totals.

SOURCE: National Science Foundation

Animal-Welfare Legislation Gains in House

Assisted by some real-life horror stories (see Page 6) and determined lobbying, animal-welfare legislation has progressed through the legislative mill to the point where it now seems likely that a bill that balances scientific and welfare concerns will make it to the House floor. The Senate, meanwhile, remains indifferent to the subject, but what must be noted is that it is yet to feel the weight of the welfare activists' formidable lobbying efforts.

Drafted by the House Subcommittee on Science, Research and Technology, chaired by Rep. Doug Walgren, (D-Pa.), HR 6245 is the product of efforts to accommodate the interests of the animal-welfare community and the biomedical research establishment. The task has been complicated by the incompatibility of many of these interests and a political climate hostile to federal regulation and non-defense spending.

At the information-gathering hearings in October 1981, witnesses of wide-ranging opinions and backgrounds made it evident to Congress that the issue of laboratory animal welfare was no longer a fringe concern. Research organizations, which once had regarded outside criticisms and complaints about the treatment of lab animals as merely a nuisance, were forced to respond to arguments for shifting the responsibility for assuring the ethical treatment of laboratory animals from scientists themselves to the government. For advocates of animal welfare, the hearings came at an opportune time: One month earlier, Maryland police, acting under the state anti-cruelty law, had made an unprecedented seizure of seventeen monkeys from the lab of a Washington area researcher.

Testimony at the October hearings focused on two bills that had been circulating on Capitol Hill offices since the previous Congress: HR 556, known as the Research Modernization Bill, and HR 4406, a bill to amend the Animal Welfare Act. Both were extremely unpopular among researchers. HR 556, produced by the fairly radical United Action for Animals, called for the reallocation of 30-50 percent of the federal budget for animal research to the development and use of "alternatives"—methods of research and testing, such as cell or tissue culture and computer modeling, which reduce or replace the use of live animals. Researchers quickly opposed this proposed diversion of funds, arguing that such a shift would seriously disrupt important research. Others maintained that bills of any kind to promote the use of alternatives were unnecessary, as scientists were already developing and employing cheaper and faster techniques at a swift pace.

Rep. Pat Schroeder's (D-Col.) bill, HR 4406, which proposed a new definition of pain and gave power to the Secretary of Agriculture to regulate the design and conduct of experimentation with animals, also proved unpalatable to researchers. Humane treatment, yes; interference in actual research, no, was the response that eventually silenced both bills.

Still, the arguments for legislation had left enough of an impression to result in a compromise, which is embodied in 6245, now pending before the full House Committee on Science and Technology. On the surface, the bill seems to accommodate nicely the suggestions of the more moderate sector of the animal-welfare movement. The Secretary of Health and Human Services is

(Continued on page 6)

BUDGET *(Continued from page 4)*

proximately two-thirds of its R&D effort." NSF related the shift to cuts in defense and space spending, but added that recent major increases in defense spending may reverse the trend.

(*Highlights* Report No. NSF 82-311 is available without charge from Division of Science Resources Studies, NSF, 1800 G St. Nw., Washington, DC 20550.)

R&D Funds Up, AAAS Says

The AAAS's annual budget inquest has earned recognition as the preeminent illuminator of the federal portion of national R&D spending. This year, unfortunately, federal budgetary proceedings have been so delayed and muddled that the June 23-24 meeting had to content itself with figures based on presidential budget requests, partial congressional responses, and general trends. The exact amounts of cash that will be available for R&D when fiscal 1983 rolls around next October 1 are, in most cases, unknown even at this late date. As reported in a background document, *Research & Development, AAAS Report VII,* the big picture for the new year is as follows:

- Total budget authority for R&D will go up by 11 percent over 1982, for a total of $44.4 billion; compared with 1981, that's a 19-percent increase.
- Defense R&D is the big gainer, up since 1981 by a "real" 23 percent, while non-defense R&D will hold even next year in constant dollars, and drop about 6 percent from 1982 in purchasing power.
- Basic research for 1983 will go up about 3 percent in real terms, but that will merely get it back approximately to where it was in 1981.

(*Research & Development, AAAS Report VII,* 159 pages, is available for $8 per copy from AAAS Sales Department, 1515 Massachusetts Ave. Nw., Washington, DC 20005.)

. . .But Subcommittee Cuts Out Needed Funds

(Continued from page 5)

directed to support research on the development of alternatives and, in turn, to direct the National Institutes of Health, the Food and Drug Administration and the inter-agency national toxicology program to promote the use of alternatives and decrease unnecessary duplication of animal experiments.

Researchers seeking federal funds are required to prove accreditation of their facilities by a private agency, e.g., the American Association for Accreditation of Laboratory Animal Care, and to include in their grant proposals "justification for anticipated animal suffering in terms of demonstrable benefits...." In addition, they must provide assurances that an "institutional animal-care committee," consisting of at least one veterinarian and one animal-welfare representative, will periodically inspect the lab, review research protocols to assure that proper standards of humane treatment are being upheld, file regular reports to the Department of Agriculture, and sponsor training courses for scientists and technicians in the use of alternatives and the practice of humane care.

However, two key provisions favored by the welfare movement did not survive mark-up in the Subcommittee. Fiscal conservatism dealt blows to authorizations for specific appropriations from the Health and Human Services budget for alternatives research and $30 million in new money for fiscal year 1983 to assist in the upgrading of non-federal animal care facilities.

And Reps. Vin Weber (R-Minn.) and Joe Skeen (R-NM) introduced an amendment to exempt all agricultural research and animal husbandry practices from the provisions of the bill. Chairman Walgren, initially opposed to the exclusion of major surgical procedures on farm animals from the bill, but also a political realist, finally acceded, thus avoiding sequential referral of the legislation to the powerful Agriculture Committee.

The marked-up version of the bill has drawn criticism from both researchers and animal-welfare advocates. The researchers resent the apparent political necessity of placing the steep costs of compliance on their own overburdened shoulders; the Humane Society of the US is disappointed with the lack of special appropriations for alternatives (they would have totaled $45 million by the end of FY 85) and the three-year period between enactment and implementation of the new federal grant requirements.

Though it is still far short of enactment, HR 6245, even with its gutted financial provisions, signifies a changing political mood on the subject of animal welfare. Long considered a crank issue, it is now deemed sufficiently respectable to warrant serious consideration of legislation that embodies several of the major goals of the animal-welfare movement. —Nancy Heneson

(The writer is a freelance journalist who specializes in science and health issues.)

The Maryland Horror Story

On November 1981, Edward Taub, a psychologist engaged in human and animal research on neurological disease, was found guilty in a Maryland district court on six counts of failure to provide adequate veterinary care for his monkey subjects, thus becoming the first US government-funded scientist to be convicted of cruelty to laboratory animals.

Montgomery County police had seized the monkeys from the Institute for Behavioral Research in Silver Spring, Maryland, the preceding September in response to reports by a volunteer employee of the lab of extremely unsanitary conditions in the monkey colony room and the absence of basic veterinary care for the seventeen monkeys, many of whom had broken limbs, missing digits, and open wounds.

Taub's defense claimed that the monkeys' physical condition was the inevitable result of a combination of normal primate behavior and the type of surgery that they had undergone, in which nerves running from the spine to one or more limbs are severed to study the animals' ability to re-use the damaged parts.

The Institute for Behavioral Research had been funded by NIH for eleven years, and routine inspections by the Department of Agriculture had failed to turn up any significant violations under the Animal Welfare Act, which covers standards for the physical maintenance of animals in laboratories.

Taub was convicted on the evidence provided by the police, the lab employee, Alex Pacheco (co-founder of a local animal rights group, People for the Ethical Treatment of Animals), and the testimony of several scientists and doctors of veterinary medicine. NIH has suspended Taub's grant and now has the monkeys in one of its own facilities in Poolesville, Maryland.

Taub is currently appealing his conviction.

Diabetes Board Issues Report

The fourth annual report of the National Diabetes Advisory Board, calling for an expansion of research, training, and treatment programs, is available without charge from the Board: PO Box 30174, Bethesda, Md. 20814.

Administration Has New Thoughts on Education

While the Administration's science and budget chiefs have been loudly denying the propriety of a renewed federal role in science and mathematics education, evidence of local unrest on this subject has inspired them to second thoughts. As a result, several of their senior staff aides have been quietly sounding out Capitol Hill on a low-cost, face-saving program to combat the do-nothing charges that educators have been tossing at the Administration in general and the White House science office in particular.

The decision to get moving was in large part inspired by the public-relations beating the Administration suffered in mid-May when the National Academy of Sciences held a two-day meeting on the decay of science education (SGR Vol. XII, No. 8). In a performance that affronted most of the 600 or so educators in attendance, Administration representatives scoffed at the notion that Washington should bear a major responsibility for remedying inadequacies in quality of teaching, curriculum, and other areas. They insisted that what, if anything, is to be done at the federal level must await completion of an 18-month study sponsored by the National Science Board.

The resentment generated by that response was sufficient to penetrate even this Administration, and it's now been concluded that the old gambit of wait-for-the-study won't suffice to dampen political resentment.

The White House science office has taken up the matter with the Office of Management and Budget, and, according to one report—which SGR has not been able to verify—discussions are proceeding on the assumption that $50 million might be made available. One of the top priorities for this money would be retraining programs for secondary school teachers.

Congressional sources say that preliminary discussions have been held with Administration staff members on a legislative approach.

According to one source, the Administration "is feeling more pressure than it can bear" on science and math education, and the aim is to buy off the educators and their allies at the cheapest price possible.

New Members on Aging Panel

The appointment of 10 new members to the National Advisory Council on Aging has been announced by Health and Human Services Secretary Richard S. Schweiker. The Council, which was recently expanded from 12 to 18 members, advises on research awards and serves as a consultant to the HHS Secretary and senior officials of the National Institute of Health and the National Institute on Aging; the NIA is looking for a new Director, to succeed Robert N. Butler, who has taken an academic post.

Schweiker said the Council's expansion is in response to the Institute's budgetary growth—from $15.9 million in 1974 to $75 million last year—and an accompanying broadening of scientific interest. The new Council members are:

Carroll M. Brodsky, Professor of Psychiatry, University of California Medical Center, San Francisco.

Alice Fenwick-Collier, Deputy Mayor, Akron, Ohio.

Robert Katzman, Chairman, Department of Neurology, Albert Einstein College of Medicine.

Dorothy T. Krieger, Professor, Division of Endocrinology, Mount Sinai Medical Center, NY.

Ronald M. Lawrence, Assistant Professor of Psychiatry, UCLA School of Medicine.

William K. McClelland, President Grand Peoples Company, Los Angeles.

Adrian M. Ostfeld, Professor, Laboratory of Epidemiology and Public Health, Yale University School of Medicine.

Mildred L. Silver, President and Administrator of Renal Hygienics, Tarzana, California.

Lewis Thomas, Chancellor, Memorial-Sloan Kettering Cancer Center, NY.

Robert E. Windom, MD, Internal medicine, cardiology, Sarasota, Florida.

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R&D Politics: Stalking the Other Guy's Budget

Demands for a share of someone else's piece of the federal research and development budget are becoming a loud and nasty feature of Washington science politics.

Covetous gazing across disciplinary boundaries has always been with us, but what's different now is that the aggressive goals are openly stated and vigorously pursued.

The most conspicuous example so far is the Small Business Innovation Development Act, passed by the House last week and probably soon to go to conference with the Senate, which last December passed an essentially similar version. The House bill calls for virtually all federal agencies with extramural R&D spending of over $100 million a year eventually to set aside 1.25 percent for R&D in small firms; the Senate's figure is 1 percent.

Since small firms already receive far more than 1.25 percent of federal R&D spending, mostly from Defense, NASA, and Energy, the main purpose of the bill is to bring in the laggards, of which the National Institutes of Health is the most prominent. (The present spenders, however, are expected, though not required, to increase their support of small firms.) In effect, the small business backers are demanding that NIH divert funds from its predominantly academic clientele to a new group of claimants—small firms. This may be altogether meritorious in giving the taxpayers the best R&D bang for the buck. But, in contrast to past drives for bigger budgets, it is product of something new: Squabbling over slices of a constant pie.

The interest in transboundary grabs can be seen in the proposal by Frank Press, President of the National Academy of Sciences, for obtaining more funds for basic research. Speaking to the annual R&D colloquium of the American Association for the Advancement of Science on June 23, Press candidly recommended that growth for basic research be tapped from the far larger sum that the federal government spends on developmental activities.

"In that huge $26-billion [development] budget," he said, "I know that it is possible to find $700 million a year that isn't productively spent, that could be transferred to basic and some of the applied research, and, by itself, provide the real growth of 3-4 percent above inflation that I've been talking about."

Meanwhile, Presidential Science Advisor George A. Keyworth II has been suggesting that some of the funds going to the national laboratories might be better spent elsewhere. And a chorus of science-policy mandarins drawn from academe have no doubt about where that elsewhere is.

Whereas the various sectors that make up the scientific community used to collaborate in calling for more federal spending, the politics of scarcity is causing them to grab for each other's throats. The process is already rough—and it's just beginning.

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SGR Summer Schedule

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